How GenAI is transforming cloud adoption in the Middle East

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The Middle East, notably the GCC countries – Saudi Arabia, the UAE and Qatar – are rapidly embracing digital transformation as part of their ambitious national visions for economic diversification, innovation and global leadership. This shift is driven by ambitious national strategies. As the region's digital economy continues advancing, the business imperative for adopting cloud-based technology has become increasingly pronounced. As a result, the synergy between cloud adoption and Generative AI (GenAI) is critical in enabling smart cities, advancing industries and transforming public services.

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As highlighted in PwC's latest 28th Annual CEO Survey: Middle East findings, regional business leaders recognise AI's potential as a catalyst for innovation, with half of GCC CEOs trusting it to a 'large' or very 'large extent' compared to only one third of their global counterparts. A notable 88% of CEOs in the GCC have adopted GenAI in the last 12 months, exceeding global averages and reflecting greater confidence in the technology's potential. Regional business leaders are also optimistic about GenAI's impact on their financials, with 70% indicating that it will increase profitability in the next 12 months, compared to just 49% globally.

This article examines the evolving landscape of cloud adoption in the region and explores the symbiotic relationship between GenAI and cloud adoption, highlighting their collective role in transforming industries.

01 The future of cloud transformation in the Middle East
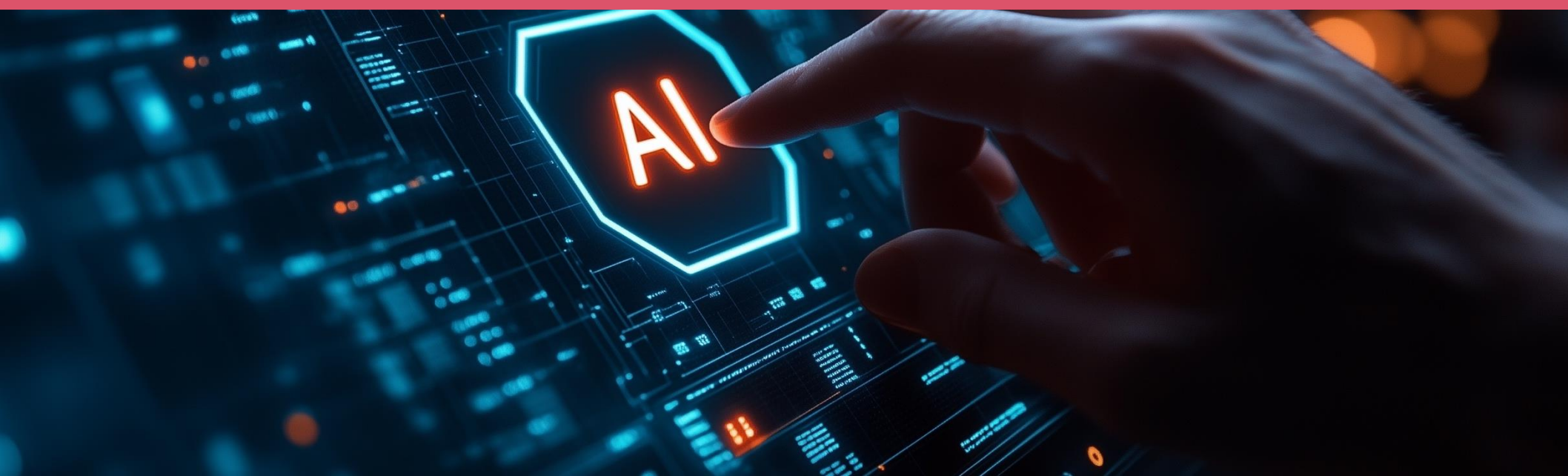
The GCC countries have been actively investing in digital transformation, with cloud technology playing a pivotal role in this transition. According to the PwC Middle East report, **The future of cloud adoption in the Middle East,** 90% of organisations have moved beyond simple migration and are now modernising applications or creating cloud-native solutions. This shift underscores cloud transformation as a cornerstone of the region's digital economy.

Emerging trends and opportunities in cloud transformation:

1. Public sector modernisation
E-government services: Cloud platforms enable governments to deliver seamless, citizen-centric services, improve transparency and streamline public administration. Initiatives such as the UAE's Smart Dubai and Saudi Arabia's Yesser leverage cloud infrastructure to centralise digital services and enhance user experiences.

Smart cities: In Saudi Arabia, for example, the city of Riyadh is transforming into a smart city with the Internet of Things (IoT) driving sustainability and innovation in all sectors, including business, entertainment, food, retail, accessibility, mobility, education, culture, health and wellbeing.

Data sovereignty and national security:
. Sovereign cloud solutions ensure sensitive data is stored and processed locally, aligning with regulations and bolstering security. GCC countries such as Saudi Arabia, Qatar and the UAE are investing heavily in sovereign cloud initiatives to protect critical national interests.

2. Transformational impact on key industries
Energy sector: The oil and gas industry leverages cloud-based AI and IoT solutions to optimise production, monitor assets in real time and enable predictive maintenance, resulting in cost savings and operational efficiency.

Healthcare: Cloud solutions enable telemedicine, centralised electronic health records and AI-powered diagnostics. Initiatives such as SEHA in the UAE and Saudi Arabia's Vision 2030 health objectives rely on cloud transformation to improve patient care.

Finance: Cloud platforms are transforming the financial sector by enabling advanced cybersecurity, real-time fraud detection and hyper-personalised financial services.

3. Empowering startups and SMEs
Scalability for startups: Cloud transformation provides startups with cost-effective tools to scale operations quickly, particularly in the AI, fintech and e-commerce sectors.

Support for SMEs: Government-led initiatives like Saudi Arabia's Vision 2030 prioritise SME growth. Cloud platforms empower small and medium business enterprises (SMEs) by offering affordable, innovative solutions that enhance productivity and competitiveness.

4. Expanding data centres and sovereign cloud initiatives

Localised data centres: Leading providers such as Microsoft Azure, AWS, Oracle Cloud and Google Cloud are establishing regional data centres to address data sovereignty concerns and cater to local businesses.

Sovereign cloud: Governments across the GCC are collaborating with cloud providers to ensure compliance with regulatory requirements, especially in sensitive industries like defense and healthcare.

5. Integration of AI and machine learning

Cloud platforms in the GCC are integrating AI and machine learning capabilities to enable advanced analytics, automate workflows and power innovative applications in sectors such as logistics, education and urban development.

6. Edge computing and IoT expansion

Real-time applications: Edge computing brings data processing closer to the source, reducing latency and improving the performance of applications like autonomous vehicles, industrial automation and smart grids.

Internet of Things (IoT) adoption: The GCC's focus on smart infrastructure and utilities fuels the demand for cloud-hosted IoT solutions, which enable efficient resource management and improved service delivery.

7. Sustainability and green IT

Optimising energy use: Cloud platforms help organisations reduce energy consumption in data centres, aligning with GCC nations' decarbonisation goals.

Supporting renewable energy: Cloud-enabled platforms promote renewable energy projects and circular IT models to advance green initiatives.

8. Enhanced cybersecurity and compliance

Cloud-native security solutions: AI-powered tools proactively detect and mitigate cyber threats, ensuring data security.

Regulatory alignment: Cloud providers are tailoring their services to meet local compliance standards, such as the UAE's National Cybersecurity Strategy and Saudi Arabia's Cloud-First Policy.

9. Workforce development and upskilling

Training initiatives: Programmes like the UAE's National Programme for Coders are preparing the workforce to excel in cloud transformation, AI and data analytics roles.

10. Regional collaboration and digital ecosystems

Unified platforms: Cloud solutions enable cross-border collaborations in sectors like trade, healthcare and energy, fostering a connected and resilient region.

The GCC's strategic focus on digital transformation, coupled with the growing adoption of cloud technologies, positions the region to unlock immense economic and societal benefits while maintaining its competitive edge on the global stage.
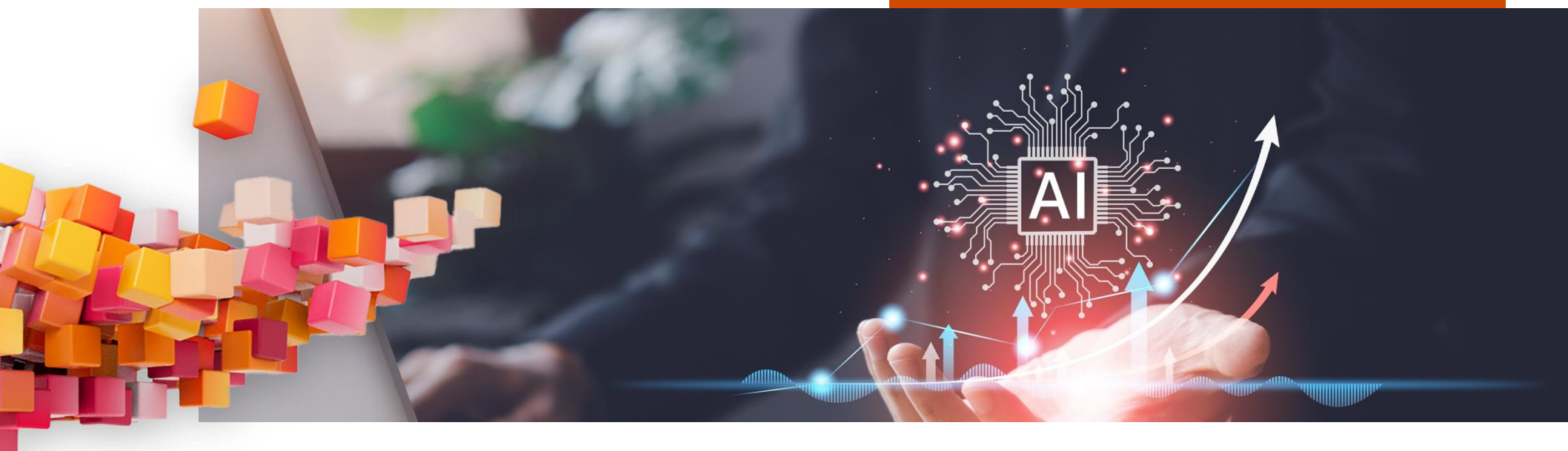
02 The role of GenAI in driving innovation:

GenAI is a transformative force in the GCC, enabling operational efficiencies, automating complex processes and driving sector-specific innovations:

Saudi Arabia: GenAI is a cornerstone of Vision 2030, facilitating the Kingdom's shift towards a diversified economy. This shift emphasises innovation in non-oil sectors such as tourism, entertainment and healthcare. The Red Sea Project, for example, is utilising GenAI to transform visitor experiences. AI-powered systems generate dynamic, personalised interactions, adjusting in real time to enhance engagement.

The UAE: The UAE has ambitious plans to position itself as a global innovation hub. GenAI is improving business operations across sectors, from banking to construction. In the financial services sector, AI is used to automate financial planning, analyse transaction patterns and enhance risk assessments, making the sector more agile. The construction industry in Dubai is leveraging AI to create smart buildings that optimise energy use and reduce operational costs.

Qatar: Qatar's adoption of GenAI spans sectors such as finance, healthcare and education, driving efficiency and transforming customer engagement. In the banking sector, AI is streamlining fraud detection and risk management, while in healthcare, it assists with diagnostics and patient care. GenAI also personalises learning experiences in education, offering adaptive learning paths and tailored content to meet students' individual needs.

03 GenAI and its impact on cloud adoption
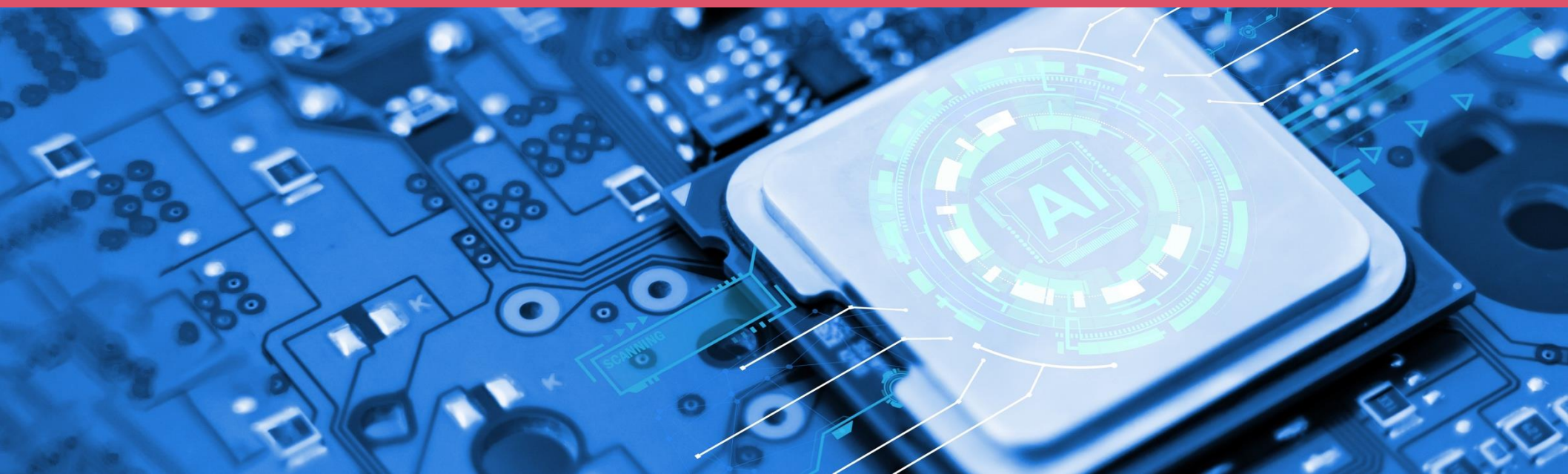
According to PwC estimates, by 2030, every US$1 invested in GenAI in the GCC region could deliver US$9.9 in economic growth. At this pace, the overall economic impact of GenAI is projected to reach US$23.5 billion annually, with a transformative potential for the region's economy. Regional findings of our latest 28th Annual CEO Survey have also revealed that GenAI has driven greater efficiencies at work, with 68% of business leaders in the GCC reporting improved efficiencies in their own time at work, while 63% reported efficiencies in employees' time.

Cloud adoption worldwide is being propelled by several key factors, including the rise of remote work, the growing demand for advanced data analysis and cybersecurity, and the need for more efficient and resilient supply chains. Cloud-based solutions offer real-time insights that optimise inventory management, reduce costs and mitigate risks. As businesses increasingly leverage AI, cloud technology will serve as the critical foundation for scalable and cost-effective transformation.

GenAI sits at the heart of this transformation and plays a critical role in the evolution of cloud adoption, bringing unprecedented intelligence, adaptability and efficiency to cloud platforms. GenAI is reshaping the way businesses in the Middle East approach innovation, customer engagement and operational efficiency. Additionally, the integration of GenAI and cloud computing enables organisations to not only automate tasks but also generate creative content, significantly enhancing customer experiences and driving data-driven decisions.

Navigating the unique challenges amid the cloud transformation acceleration:

While cloud transformation has seen significant global adoption, the Middle East faces unique challenges such as regulatory compliance and data sovereignty issues. Combining next-gen cloud platforms with GenAI can tackle these hurdles, making the adoption process smoother and more efficient.

One major barrier to cloud adoption is the complexity and cost of migrating existing systems and applications to cloud platforms. GenAI-powered tools simplify this process by analysing legacy workloads to identify the targeted cloud approach using the 7R disposition framework, automating data mapping and ensuring compatibility with cloud infrastructure. This reduces the need for manual intervention and minimises operational disruptions.

As cloud adoption accelerates in the GCC, data security and regulatory compliance have become critical priorities. GenAI provides advanced security features and ensures strict adherence to regional regulations, including data privacy and localisation laws that mandate that sensitive information is stored within national borders. For example, in Qatar, Microsoft, Google and Oracle cloud data centres keep data within the country. GenAI automates compliance processes, ensuring cloud platforms adapt to evolving regulations with advanced data protection protocols. This enables organisations to confidently navigate the GCC's complex regulatory landscape, leveraging GenAI to enhance both security and operational efficiency.

04 Key use cases for GenAI-enabled, next-gen cloud transformation
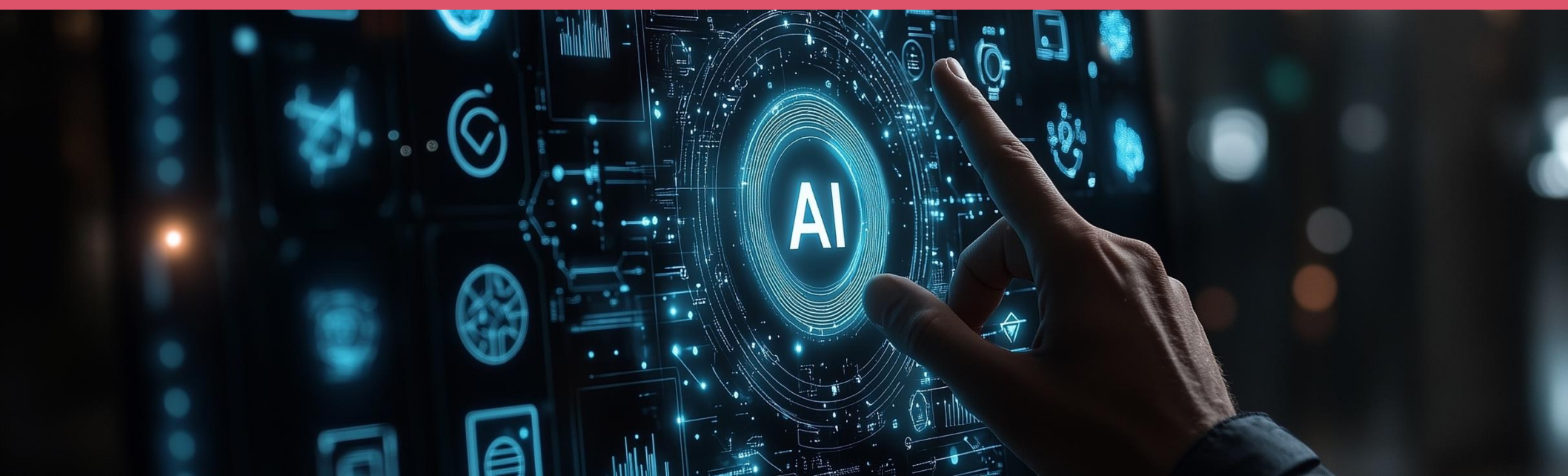
PwC has been heavily investing in embedding GenAI across the end-to-end cloud transformation value chain in collaboration with key global cloud service providers. Find below the top eight use cases for Next-Gen Cloud Transformation (GenAI-enabled):

1. Accelerating cloud migration

GenAI impact:

❑ Automates the assessment and migration of legacy systems to the cloud.

❑ Refactors applications for cloud-native environments with minimal manual effort.

❑ Provides AI-driven recommendations for architecture optimisation.

❖ **Examples:**

PwC Cloud Advancer: PwC uses GenAI-powered tools to assess clients' on-premise workloads and provide optimised cloud migration pathways. For example, in a recent project, PwC leveraged Cloud Migration Advancer combined with GenAI to streamline the migration of a global financial services firm to the cloud, reducing migration timelines by 30%.

2. Enhancing application modernisation

GenAI impact:

❑ Supports the transition to microservices and serverless architectures.

❑ Automates code refactoring and testing for compatibility with cloud platforms.

❑ Accelerates DevOps pipelines with intelligent code generation and debugging.

❖ **Examples:**

Azure OpenAI integration: PwC partnered with Microsoft Azure to modernise a client's applications. Using Azure OpenAI Services, PwC automated the conversion of monolithic applications into microservices, enabling faster updates and scalability.

OCI APEX AI: Oracle's GenAI-powered application development tools (e.g., Oracle APEX AI) help developers build modern apps faster while ensuring compatibility with Oracle Cloud.

3. Optimising cloud operations

GenAI impact:

❑ Predicts and prevents potential issues using AI-driven monitoring.

❑ Recommends resource allocation and scaling strategies based on usage patterns.

❑ Enhances cost optimisation with AI insights.

❖ Examples:

PwC Intelligent Cloud Managed Services:
PwC collaborated with cloud providers to provide AI-enhanced managed services for a retail client. By leveraging Cloud's AI Operations Suite, PwC optimised the client's cloud spending by 25% and improved uptime through predictive maintenance.

4. Transforming data insights

GenAI impact:

❑ Transforms how organisations gather, process and analyse data on the cloud.

❑ Enables real-time insights with GenAI-based data synthesis and analytics.

❑ Automates Extract, Transform, Load (ETL) processes for data pipelines.

❖ Examples:

Data insights with Azure Synapse Analytics:
PwC used Azure Synapse Analytics and GenAI tools to help a global manufacturing company analyse supply chain data. The project improved forecast accuracy and streamlined decision-making across its cloud-based analytics platform.

Amazon Web Services (AWS) Bedrock:
PwC uses AWS pre-trained GenAI models that businesses can integrate into their applications, enabling personalisation, sentiment analysis and more.

OCI AI services: PwC uses OCI AI services to integrate GenAI with its autonomous database, enhancing data analysis and predictive modeling capabilities for its clients.
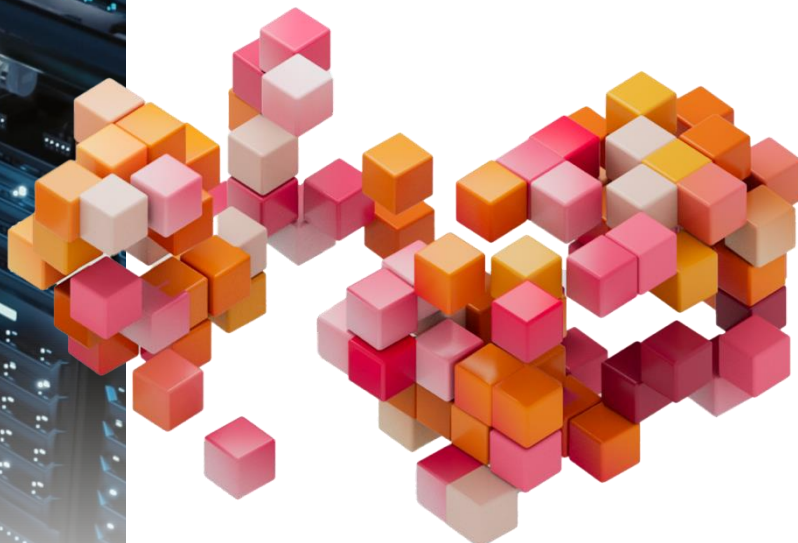
5. Enhancing security and compliance

GenAI impact:

❑ Uses AI to detect security vulnerabilities and respond to threats in real time.

❑ Automates compliance management by aligning operations with regulations.

❑ Enhances identity and access management with AI-driven authentication.

Examples:

Cloud cybersecurity solutions: PwC partnered with Google Cloud to develop a GenAI-powered threat-detection system for a financial institution. Using Google Chronicle, the system identified and neutralised advanced threats, reducing response times by 40%.

Microsoft Azure Sentinel: PwC uses AI and GenAI to detect and respond to security threats in real time, providing robust protection for enterprise cloud infrastructures using Microsoft Sentinel as an Next-Gen SOC offering.

6. Driving AI/Machine Learning (ML) adoption in the cloud

GenAI impact:

❑ Simplifies the adoption of AI/ML by integrating GenAI into cloud platforms.

❑ Provides tools for training and deploying custom models with ease.

❑ Democratises AI capabilities for businesses of all sizes.

Examples:

AWS SageMaker: PwC utilised Amazon SageMaker to develop a GenAI-based predictive maintenance solution for an energy sector client. The solution, deployed on AWS, reduced unplanned downtime by 20% and improved operational efficiency.

7. Creating industry-specific cloud solutions

GenAI impact:

❑ Delivers tailored solutions leveraging GenAI for verticals such as healthcare, retail and finance.

❑ Addresses unique challenges such as regulatory compliance, customer personalisation and operational efficiency.

Examples:

PwC used Microsoft's Azure AI and GenAI to create a patient management platform for a healthcare provider. The system automated data entry, improved patient care recommendations and streamlined compliance with healthcare regulations.

8. Supporting sustainable cloud practices

GenAI impact:

❑ Optimises cloud workloads to reduce energy consumption and emissions.

❑ Promotes green cloud practices by aligning operations with sustainability goals.

Examples:

PwC partnered with cloud providers to help a global retail chain monitor and optimise its carbon footprint using GenAI-powered analytics. This project enabled the client to reduce its cloud energy consumption by 15%.
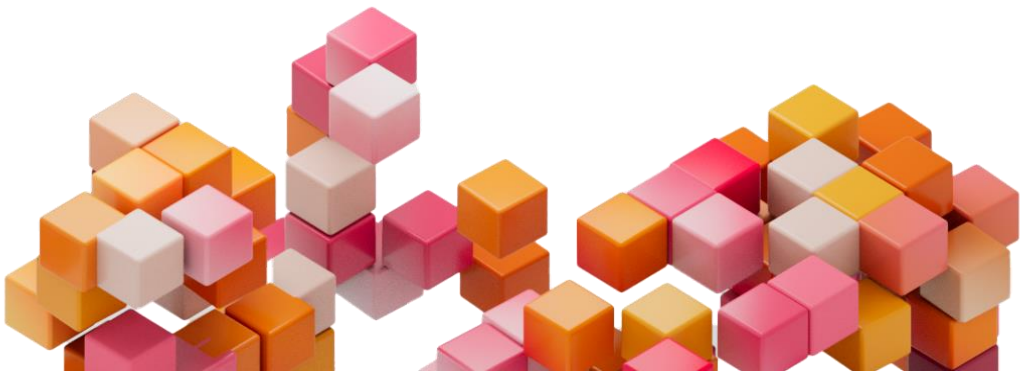
9. Democratising AI with cloud-native tools

GenAI impact:

- ❑ Makes AI accessible to non-technical users through pre-trained models and low-code platforms.

- ❑ Enables businesses to integrate AI seamlessly into workflows.

Examples:

We have leveraged Amazon SageMaker for our clients for GenAI-based model training and deployment, enabling AI integration across diverse industries.

Microsoft Azure enables businesses to embed GenAI models like ChatGPT into enterprise applications for enhanced productivity.

Oracle Cloud offers low-code tools powered by GenAI, allowing organisations to create AI-enhanced applications with minimal technical expertise.

PwC collaboration with cloud providers for NextGen Cloud Transformation:

Microsoft Azure:

PwC integrates Azure OpenAI Services into its cloud transformation projects, enabling clients to harness the power of GenAI for faster innovation and decision-making.

Google Cloud Platform (GCP):

PwC leverages GCP's AI tools, such as Vertex AI and AI Operations Suite, to drive efficiency and innovation in multi-cloud environments.

Oracle Cloud Infrastructure (OCI):

PwC collaborates with OCI to modernise enterprise applications and automate workflows using Oracle's AI-powered tools, such as OCI AI services.

Amazon Web Services (AWS):

PwC uses Amazon Web Services GenAI tools, like Bedrock and SageMaker, to enable clients to deploy AI/ML models seamlessly and enhance their business operations.

The way forward

As countries across the region continue to advance their digital transformation agendas, the impact is being felt across various industries and ambitious mega-projects, driving positive change in both the economy and society. The convergence of cloud technologies and GenAI is critical to this transformation, bringing to the fore exciting new opportunities for growth, efficiency and innovation.

The ongoing adoption of cloud and GenAI is set to fuel a technology-driven economic shift, with wide-reaching benefits for diverse industries and in alignment with national agendas and goals. The region is positioning itself as a global hub for innovation, using these technologies to diversify economies, boost productivity and drive sustainability. As these advancements continue, they will help create more resilient, agile and connected communities, setting the stage for a future where technology shapes and improves societies for years to come.

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Partner, Cloud & Digital Transformation Leader at PwC Middle East

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The accelerated adoption of cloud technologies in the region is poised to redefine digital transformation across industries. As enterprises increasingly migrate to cloud-native architectures, we are witnessing the rapid convergence of transformative technologies, with GenAI emerging as a pivotal catalyst in this evolution. This synergy is not only enhancing operational resilience and scalability but also driving hyperpersonalised customer experiences, building a more intelligent and interconnected digital economy. Looking ahead, the deepening integration of cloud infrastructure with GenAI-driven automation and cognitive computing will unlock unprecedented efficiencies, strengthening the region's position as a leader in global digital transformation while fueling sustainable economic growth.

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